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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Patent Application

Inventors(s): George Earl Peterson	**Case:**	18
Serial No.: 09/915,963	**Filing Date:**	July 26, 2001
Examiner: Shih Chao Chen	**Group Art Unit:**	2821
Title: Broadband Polling Structure		

THE COMMISSIONER OF PATENTS AND TRADEMARKS
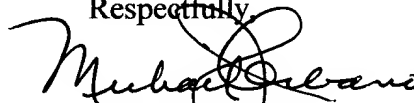### ARLINGTON, VA 22313-1450

SIR:

Enclosed is a **Reply Brief** (in triplicate) to the Board of Patent Appeals and Interferences.

NO FEE IS REQUIRED.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit my **VISA** as required to correct the error.

Respectfully,

Michael J. Urbano
Attorney for Applicant(s)
Reg. No. 24, 522
610-691-7710

Date: _09/24/04_

Express Mail No. EL 989 173 525 US

Date of Deposit _09/24/04_

I hereby certify that this application is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37CFR1.10 on the date indicated above and is addressed to the Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450

Michael J. Urbano:

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THE COMMISSIONER OF PATENTS AND TRADEMARKS
WASHINGTON, DC 20231
SIR:

REPLY BRIEF UNDER 37 CFR § 1.193

In the Examiner's Answer of August 4, 2004 he made responses under the following headings to the arguments contained in Applicant's Appeal Brief of April 15, 2004.

I. Rejection of Claims 2 & 12 under 35 USC §112

The Examiner states three reasons why he does not deem Applicant's arguments to be persuasive:

First, the Examiner states correctly that there are two types of traveling wave (TW) antennas, fast and slow wave antennas depending on whether the phase velocity (v) of the TW is greater than or less than the velocity of light (c), respectively. The Examiner cites F. Lalezari *et al.*, US Patent No. 4,931,808 to support this well-known principle, which has been acknowledged by Applicant throughout the prosecution of this application. (See, for example, Applicant's Responses of July 11, 2002 citing J. D. Kraus and of September 10, 2003 citing Mathpages.) Clearly, TW antennas in which $v > c$ are notoriously well known in the art. Dependent claims 2 and 12 merely require that the inventive antennas of independent claims 1 and 11, respectively, support the propagation of a TW in which $v > c$ in accordance with such well known principles.

Second, the Examiner asserts that the materials or geometry that produces the recited phase velocity should be recited. Applicant notes that this is the *first* time that the Examiner has raised

the issue of materials or geometry of the invention defined by claims 2 and 12 and, therefore, respectfully requests that the Board give such comments *no weight*. Notwithstanding, Applicant's specification is replete with many examples of antenna designs (e.g., see FIGs. 2-4) that satisfy the subject TW condition. In addition, the principles underlying a TW with $v > c$ are so notoriously well known in the art, as noted above, that one skilled in the art would be readily able to build Applicant's invention using the designs described in the specification alone or combining those designs with well known principles evident in Lalezari, Kraus, Mathpages and other prior art references.

Third, the Examiner again asserts that the term "supporting" in claims 2 and 12 does not constitute a patentable limitation, but he does not traverse the arguments put forth by Applicant his Appeal Brief.

Fourth, the Examiner concludes that claims 2 and 12 "need to meet two criteria, one is the traveling wave is the fast wave and the other is the free space." Applicant again notes that this is the *first* time that the Examiner has raised the issue that the invention defined by claims 2 and 12 must recite these *two criteria* and, therefore, respectfully requests that the Board give such comments *no weight*. In addition, the expression "need to meet" is not clear. If the Examiner means that claims 2 and 12 must recite that the TW is a fast wave when it propagates in free space, then the Examiner is requiring Applicant to add redundant terminology to an already concise and clear claim; i.e., a TW with $v > c$, as already recited in claims 2 and 12, by definition implies that the TW is a fast wave in free space. To require Applicant to add redundant language is merely an exercise in prolix.

II. Rejection of Claims 1, 3, 5-9, 11, 13 & 15-18 under 35 USC §102(e)

Regarding claims 1, 11 and 21 (*sic*), the Examiner's Answer merely recites the basis for his earlier rejection but fails to overcome the substantial arguments set forth in Applicant's Appeal Brief.

Regarding claims 3 and 13, the Examiner states that Wicks describes an antenna element having a parabolic curved segment B, relying on an unidentified version of Webster's dictionary as defining "parabola" as "something bowl-shaped." Applicant is unsure what version of Webster that the Examiner has cited, but in the context of high-tech inventions clearly the terms "parabola" or

"parabolic" must be given their well known technology-accepted definitions of a *quadratic* function that takes the generic form:

$$(x-a)^2 = 2p(y-b)$$

where *a* is the distance that the focus F is offset from the y-axis, (b - p/2) is the distance that the directrix D is offset from the x-axis, and *p* is the distance between the F and D. (See, A. E. Taylor, "Calculus with Analytic Geometry," Princeton-Hall, Inc., NJ, 1959.) An equivalent definition, but somewhat simpler from a mathematical standpoint, can be found in the version of Webster's dictionary available to Applicant's attorney. In that version "parabola" is defined as a "plane curve formed by the intersection of a right circular cone with a plane parallel to a generator of the cone...Equation: $y^2 = 2px$ or $x^2 = 2py$," and "parabolic" is defined as "having the form or outline of a parabola." (See, "Webster's Encyclopedic Unabridged Dictionary of the English Language," Gramercy Books, NY, 1989.)

Based on either Taylor or Webster, or other technology-accepted definitions, the term parabola is not merely "something bowl-shaped;" it must have the shape of a quadratic function. Wicks fails to teach or reasonably suggest that curved segment B is parabolic.
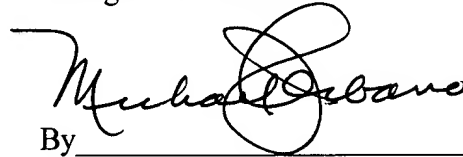
III. Rejection of Claims 10, 19, 21, & 23-25 under 35 USC §103(a)

The Examiner restates his position, which relates to "mere change of shape" of the ground plane, but fails to address or overcome Applicant's substantial argument that Wicks and Ogot are not properly combinable.

IV. Conclusion

In summary, it is respectfully submitted that (1) neither Wicks alone nor Wicks in combination with Ogot renders claims 1-19 and 21-25 unpatentable, and (2) claims 2 and 12 satisfy Section 112. Accordingly, reversal of the final rejection is in order.

Respectfully,
George Earl Peterson

By _____
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Date: _09/24/04_